Applied Science Associates, Inc.

529 Main Street, Wakefield, Rhode Island 02879 (401) 789-6224

April 13, 1983

Mr. Gerard Sotolongo
Region I
U.S. Environmental Protection Agency
Waste Management Division
JFK Federal Building
Boston, MA 02203

Dear Mr. Sotolongo:

In regard to the PCB pollution problems of New Bedford Harbor, I thought it might be of interest to you that Applied Science Associates, Inc. has a three dimensional hydrodynamic model with sediment transport capabilities configured to the area. I enclose a few example graphics to demonstrate some preliminary results.

I am aware of the fact that the EPA will be performing an environmental impact assessment for the harbor as a superfund site, and believe that ASA can supply you with top quality hydrodynamic and mass transport modeling capabilities. In addition, ASA personnel have experience in the coupling of physical/chemical fates models with biological effects models to achieve proper hazard assessment evaluations in the marine environment.

We are a small business and because of our development lead on this particular problem, I believe we can offer you timely response at a very competitive total cost. Examples of past and on-going ASA projects are given on the attached sheet. Please feel free to contact any of the technical monitors for references.

We would be glad to prepare a preproposal or full proposal in response to a description of work, and look forward to hearing from you.

Sincerely,

Mark Reed

Mark Reed, Ph.D.

MR:tlh
Enc.

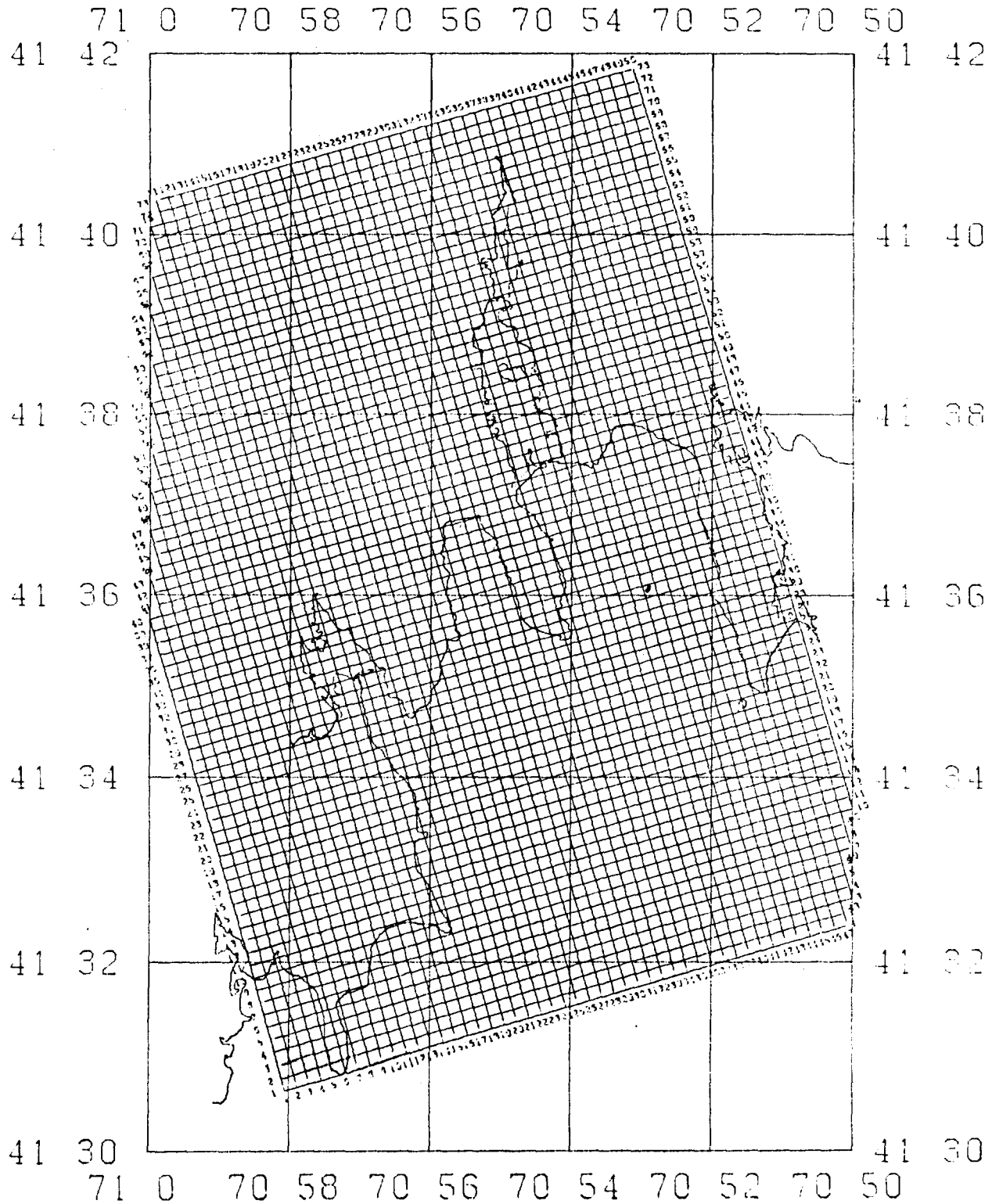


Figure 1. New Bedford Harbor region with 250 meter grid overlay.

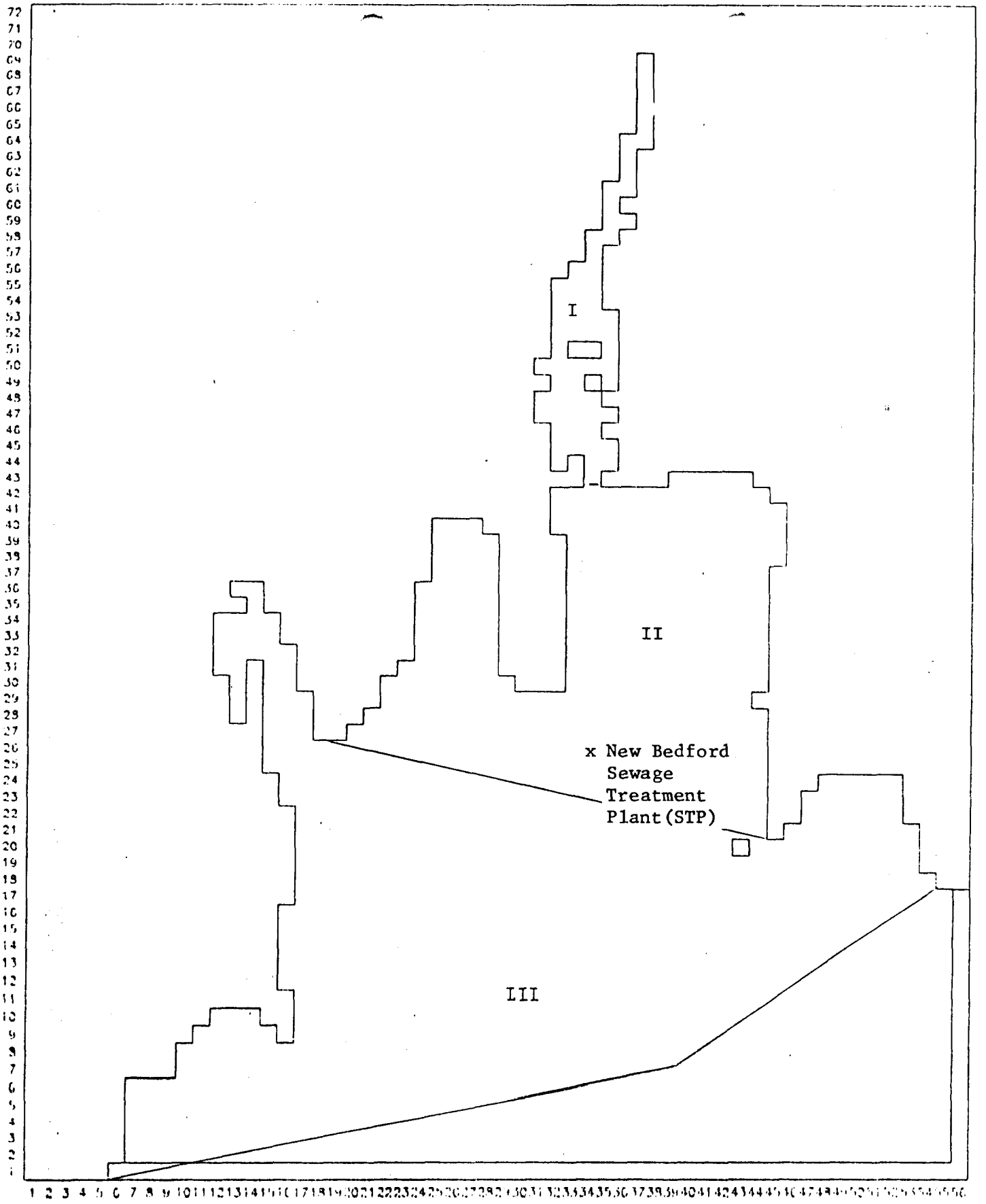


Figure 2. Model locator map of New Bedford Harbor showing the three closure areas and location of pollutant source .

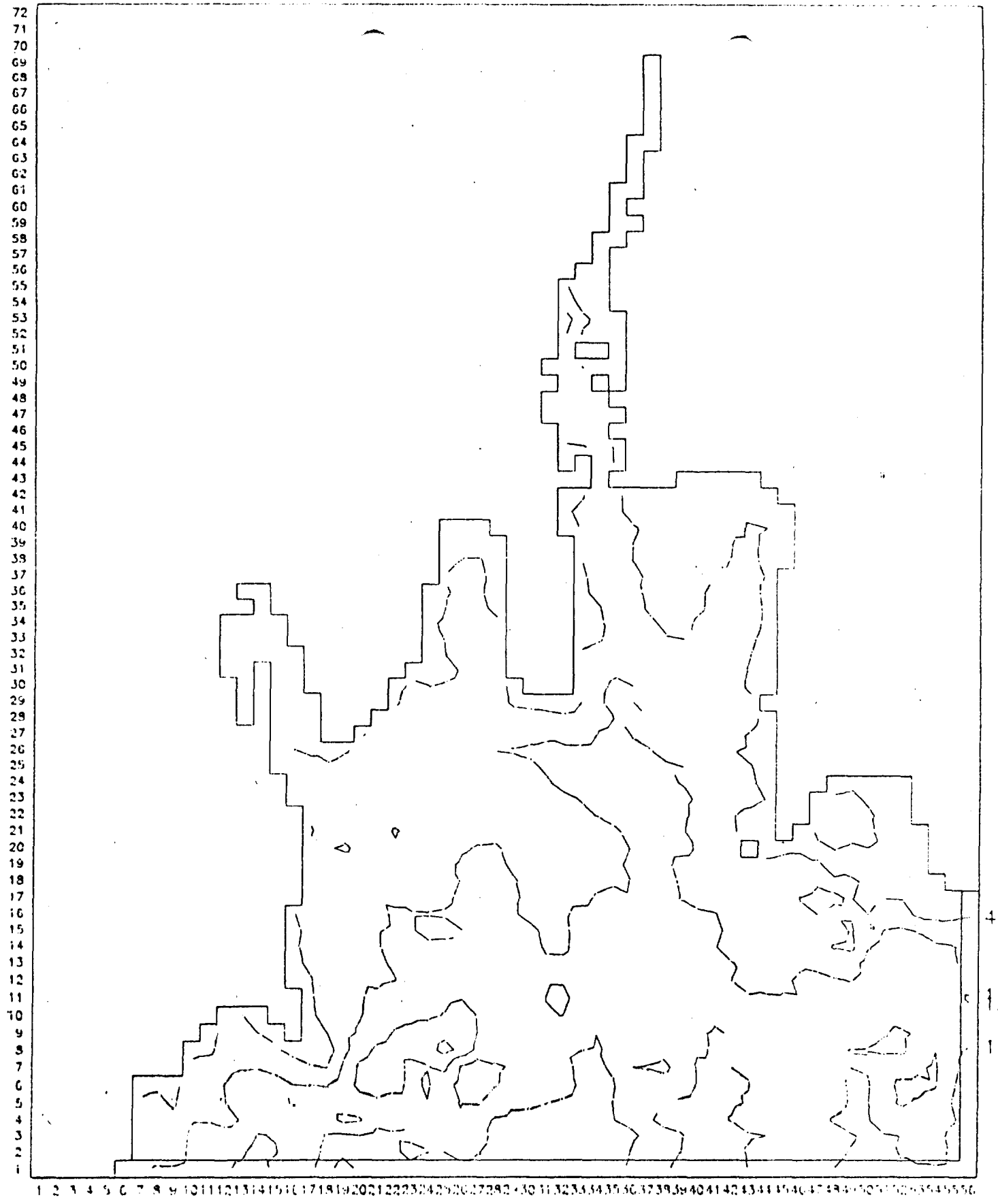


Figure 3. Model bathymetry.

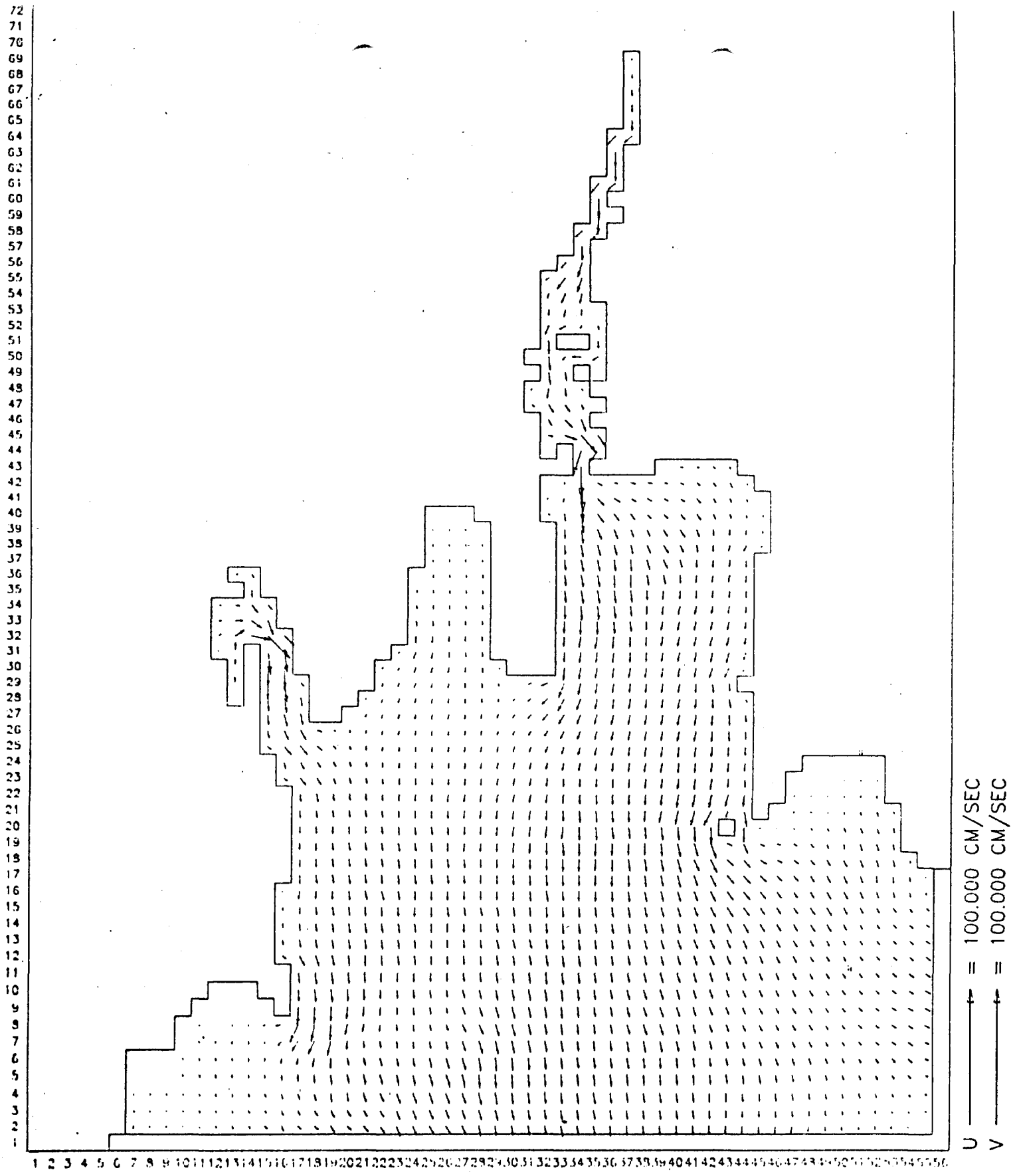


Figure 4. Vertically averaged flow field at maximum ebb tide.

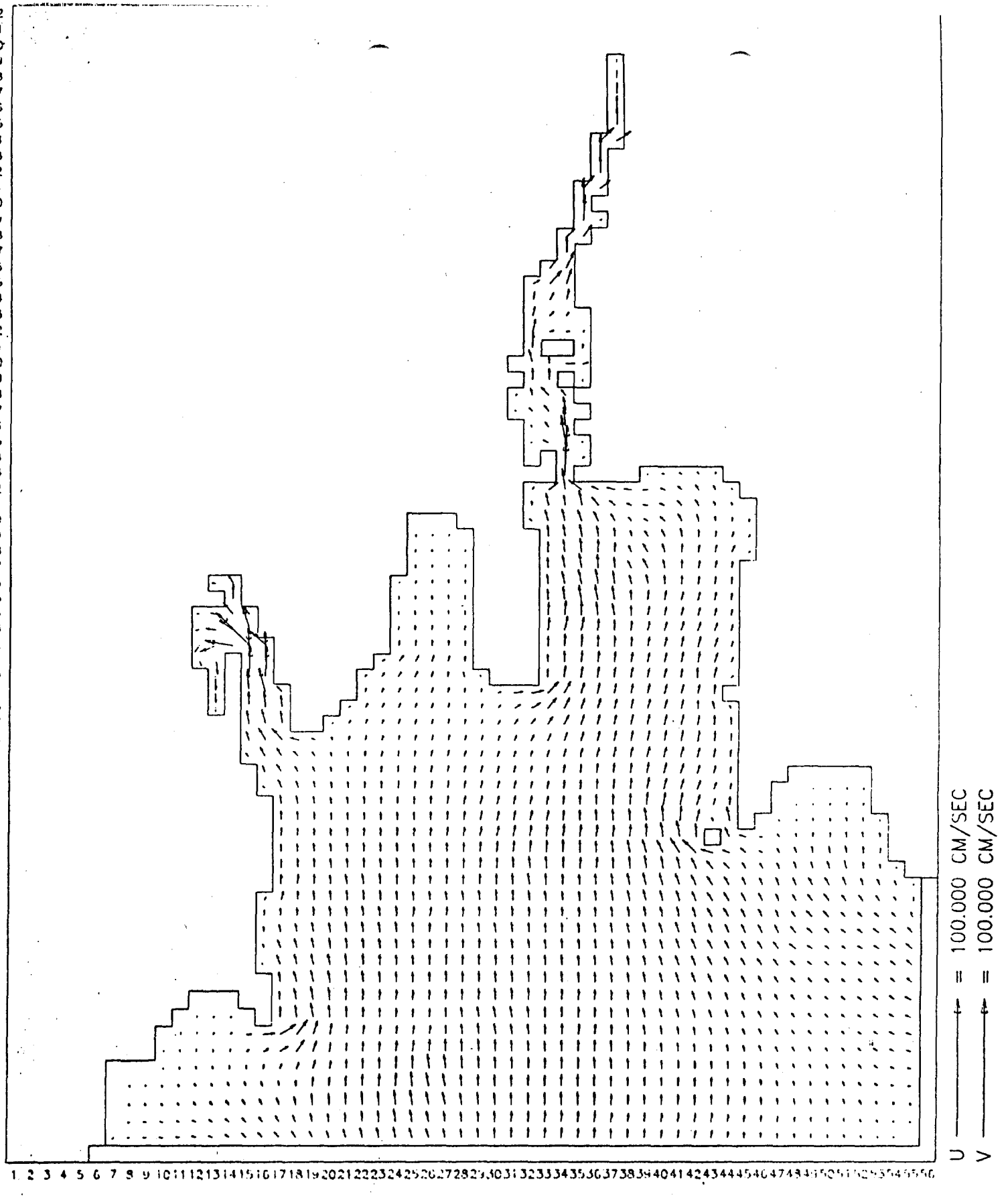
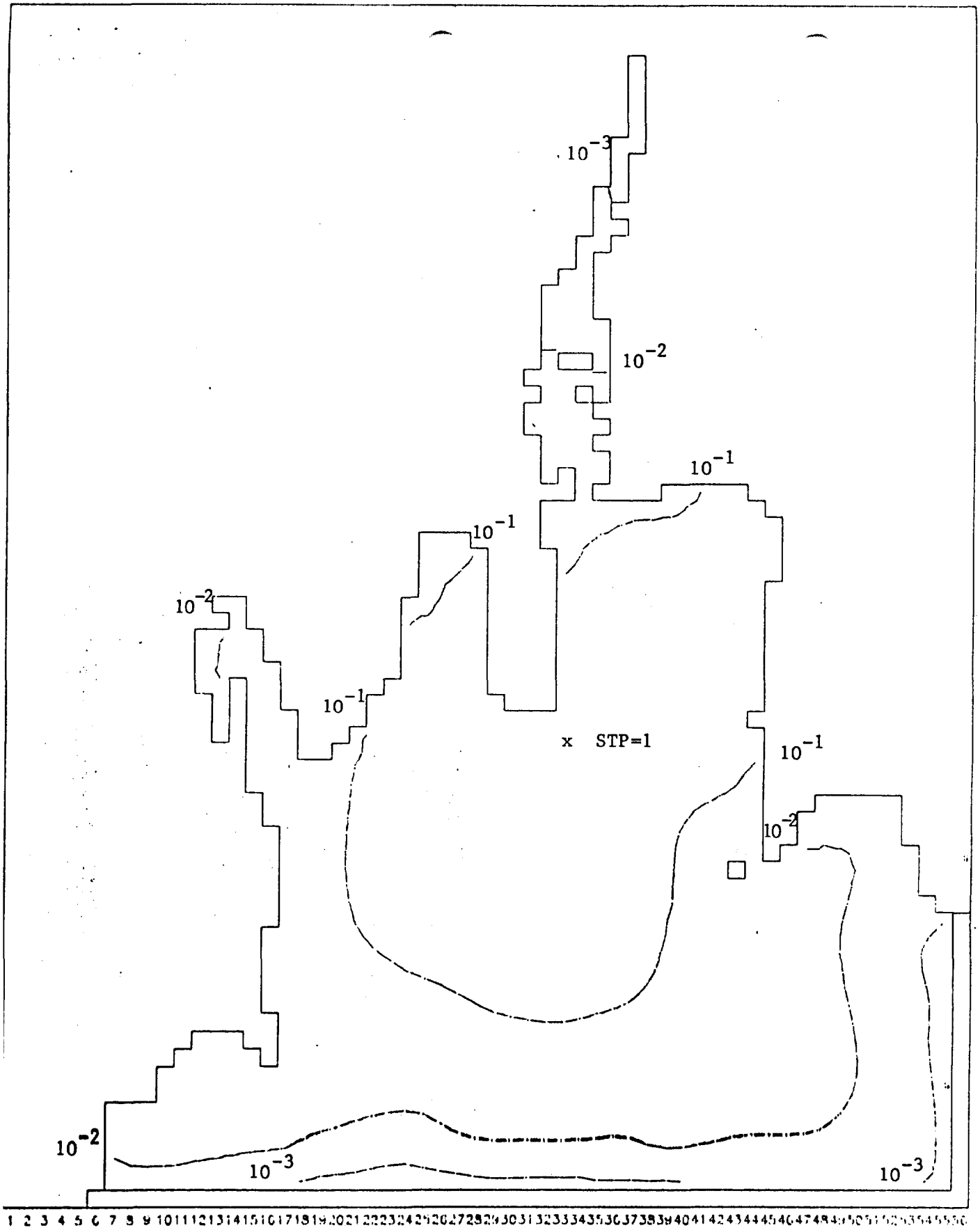


Figure 5. Vertically averaged flow field at maximum flood tide.



LOG CONCENTRATION CONTOURS LEVEL K = 1 TIME=2146177. SEC STEP=6624
MIN=-2.000 MAX=3.000 DEL=1.000 NCON=5
NEW BEDFORD 56X72 250M GRID SEWAGE TREATMENT PLANT

Figure 6. Equilibrium concentration contours for conservative pollutant from the Sewage Treatment Plant site (constant source strength = 1).

Recent ASA Contracts Related to Hazard Assessment
in the Marine Environment:

TITLE: Assessing the Impact of Oil Spills on a Commerical Fishery

CONTRACT: AA851-CTO-75 (Prime contract awarded to University of Rhode Island) Subcontract P.O. 72979

SPONSOR: Mineral Management Service
NY OCS Office
Suite 32-120
26 Federal Plaza
New York, NY 10278
Dr. William Lang, Technical Monitor
(212) 264-0811
Mr. Jeffrey Petrino, Contracting Officer
(703) 435-6415

AMOUNT: Total Award: $755,000, Subcontract: $195,000

TITLE: Three Dimensional Circulation Model of the Gulf of Maine and Georges Bank

CONTRACT: AA851-CT1-39 (Prime Contract) Subcontract P.O. 66006

SPONSOR: Mineral Management Service
NY OCS Office
Suite 32-120
26 Federal Plaza
Dr. William Lang, Technical Monitor
(212) 264-0811
Mr. Jeffrey Petrino, Contracting Officer
(703) 435-6415

EG&G Environmental Consultants
151 Bear Hill Road
Waltham, MA 02154
Dr. Richard Scarlet, Program Manager
(617) 890-3710

AMOUNT: Subcontract: $56,000

TITLE: Protocol for Designating Ocean Disposal Sites

CONTRACT: 68-01-6388 (Prime contract awarded to JRB Associates)
Subcontract No. 33-852-20

SPONSOR: Environmental Protection Agency
Criteria and Standards Division WH585
401 M St., SW, Room 2824
Washington, D.C. 20460
Dr. Victor Bierman, Technical Monitor
(401) 783-1071

JRB Associates
8400 Westpark Drive
McLean, VA 22101
Ms. Joyce Standish, Contracting Officer
(703) 821-4600

AMOUNT: $49,306

TITLE: Coliform Dispersion Model for Upper Narragansett Bay

CONTRACT: 68-01-6205

SPONSOR: Environmental Protection Agency

TITLE: Coliform Dispersion Model for Upper Narragansett Bay

CONTRACT: 68-01-6205

SPONSOR: Environmental Protection Agency
Region I
JFK Building
Boston, Massachusetts
Mr. Richard Pastore, Technical Monitor
(617) 223-5470
Mr. Rocco Saracina, Contracting Officer
(202) 382-3207

AMOUNT: $43,098

TITLE: Physical Processes in the Coastal and Offshore Waters of the Northeast United States

CONTRACT: NA-82-FA-C-0002

SPONSOR: National Marine Fisheries Service

Northeast Region
14 Elm Street
Gloucester, MA 01930
Mr. Gerald McConnell, Contracting Officer
(617) 281-3600

AMOUNT: $22,908

TITLE: Charaterization of Oil Spill Fates and Effects on Georges Bank

CONTRACT: 1004-301109

SPONSOR: U.S. Department of State
Canadian Maritime Boundary Legal Counsel
2201 C Street, N.W.
Washington, D.C. 20520
Ms. Mary Wild Ennis, Contracting Office
(202) 632-7424

EDUCATION:

1969 B.A., Antioch College, Philosophy
1974 B.S., University of Pahlavi (Iran), Civil Engineering
1975 M.S., University of Pennsylvania, Environmental Engineering
1980 Ph.D., University of Rhode Island, Ocean Engineering

SPECIAL EDUCATION:

1981 (August) NATO Advanced Study Institute on Environmental Impact Assessment Methodologies, Chateau de Bonas, France

EXPERIENCE:

1981- Applied Science Associates Inc. Senior Scientist, Project Manager, Numerical Modeler, Data Analyst. Environmental Impact Assessment Modeling. Effects of Oil/Toxic Materials on Biological Systems.

1980-1981 Institute for Cybernetics, University of Trondheim Norway Postdoctoral Research Fellow. Applications of Continuum Theory to Coupled Physical and Biological Numerical Model Systems.

1977-1980 Department of Ocean Engineering, University of Rhode Island Research Assistant
Formulation, Development and Application of an Oil Spill Fisheries Impact Assessment Model for the Georges Bank Cod Stock.

1975-1976 Department of Civil Engineering, University of Pennsylvania Research Assistant
Computer Model of the National Zinc Industry; Impact Assessment Modeling in Freshwater Streams.

MEMBERSHIPS:

American Geophysical Union
American Association for the Advancement of Science
Phi Kappa Phi

HONORS AND AWARDS:

Full Graduate Fellowships, University of Pennsylvania and University of Rhode Island

Full Support Grants to NATO Advanced Study Institute on Environmental Impact Assessment Methodologies (Bonas, France, 1981); Joint Oceanographic Assembly (Halifax, Canada, 1982)

REPORTS AND PUBLICATIONS:

"An Oil Spill-Fishery Interaction Model", Part X in Environmental Assessment of Treated Versus Untreated Oil Spills: Second Interim Progress Report, (with M, Spaulding), U.S. Dept. of Energy, Contract No. E(11-1)4047, 1978.

"Modeling Oil Spill Fates and Interactions with Fisheries" (with P. C. Cornillon and M. L. Spaulding) Toronto Oil Spill Modeling Conference, November, 1978.

"An Oil Spill-Fishery Interaction Model: Comparison of Treated and Untreated Spill Impacts", (with M. Spaulding), Proceedings of 1979 Oil Spill Conference, pp. 63-73, March, 1979.

"Impact Assessment in Oil Spill Modeling", (with P. Cornillon and M. Spaulding), paper presented at the Workshop on the Physical Behavior of Oil in the Marine Environment, Princeton, May, 1979.

"A Fishery-Oil Spill Interaction Model: Simulated Consequences of a Blowout", (with M.L. Spaulding and P. Cornillon), NATO Conference Operations Research in Fisheries, Trondheim, Norway, August, 1979, pp. 99-114 in Applied Operations Research in Fisheries, K. Brian Haley, ed., Plenum Press, NY, 1981.

"An Oil Spill-Fishery Interaction Model: Development and Applications", Ph.D. Dissertation, Department of Ocean Engineering, University of Rhode Island, Kingston, Rhode Island, 1980.

"Oil Impact on Fisheries - Damage Function Assessment Utilizing Monte Carlo Techniques, Phase I, Literature Review", (with H. Walker, E. Lorda, and E. Watkins), report to Bureau of Land Management Contract # AA551-CT9-28, March 1980.

"The Application of SEASAT-1 Radar Altimetry to Continental Shelf Circulation Modeling", (with P. Cornillon, M. Spaulding, and J.C. Swanson), 14th International Symposium on Remote Sensing of Environment, San Jose, Costa Rica, April 1980.

"Oil Impact on Fisheries - Phase II, Final Report: (With H. Walker, E. Lorda, and J.C. Swanson), Report to Bureau of Land Management, Contract #AA551-CT9-28, July 1980.

"A Multi-Dimensional Continuum Model of Fish Population Dynamics and Behavior: Application to the Barents Sea Capelin (Mallotus Villosus)", (with J. G. Balchen) Modeling, Identification, and Control, July 1982 (in press).

"Response of Georges Bank Cod to Periodic and Non-Periodic OIl Spill Events", (with M. L. Spaulding), submitted to J. Ecological Modelling, 1982.

"Oil Spill - Fishery Impact Assessment Modeling: The Fisheries Recruitment Problem", (with M. L. Spaulding and E. Lorda),

Proceedings of a Technological Conference on Hydrocarbon Exploration and Development on Georges Bank, Nantucket Island, Mass., April 27 - 30, 1982.

"Oil Spill Impact Assessment Modeling: Application to Georges Bank", invited paper, Proceedings of NOAA/EDIS/CEAS Workshop on Marine Ecosystems Modeling, Frederick, Md., April 5-8, 1982.

"A Computer Model System for Marine Pollutant Impact Assessment: Potentials for State Use" (with M. L. Spaulding), OCEANS 82, Washington D.C., September 20 - 22, 1982.

"Oil Spill - Fishery Impact Assessment on Georges Bank: Effects of Spill Timing and Spill Location", (with M. L. Spaulding, E. Anderson, and E. Lorda), special report to the U.S. Department of the Interior, 1982.

"Assessing the Impact of Oil Spills on a Commercial Fishery - OCS Lease Sale No. 52" First Interim Report, 1981, (with M. L. Spaulding, S. B. Saila, et al.), prepared for U.S. Department of Interior, Bureau of Land Management New York OCS Office. 1981.

"Assessing the Impact of Oil Spills on a Commercial Fishery - OCS Lease Sale No. 52", Second and Third Interim Reports, 1982, (with M. L. Spaulding, S. B. Saila, et al.), prepared for U.S. Department of Interior, Bureau of Land Management New York OCS Office. 1982.

"Assessing the Impact of Oil Spills on a Commercial Fishery - OCS Lease Sale No. 52", Final Report 1982, (with M. L. Spaulding, S. B. Saila, et al.), prepared for U.S. Department of Interior, Bureau of Land Management New York OCS Office.

PREVIOUS RESEARCH ACTIVITIES (FROM 1977)

Title: Environmental Assessment of Treated vs. Untreated Oil Spills (M. L. Spaulding, Principal Investigator)
Agency: Department of Energy, U.S.
Dates: 1976-1979
Amount: $170,000 (part of $1,500,000 contract)

Title: Use of Continental Shelf Circulation and Pollutant Transport Models for Analysis of Remotely Sensed Data (P. C. Cornillon, Principal Investigator)
Agency: National Aeronautic and Space Administration, U.S.
Dates 1978-1981
Amount: $120,000

Title: Environmental Impact Assessment for Atlantic Fleet Weapons Testing Facility(M. L. Spaulding, Principal Investigator)
Agency: Naval Underwater Systems Center, U.S.
Dates: 1978
Amount: $9,800

Title: Assessing the Impacts of Oil Spills on a Commercial Fishery (M. Reed, ASA Project Manager, M. L. Spaulding, S. B. Saila, Principal Investigators)
Agency: Bureau of Land Management, U.S. Department of the Interior,
Dates 1980-1982
Amount: $740,000

PRESENT RESEARCH ACTIVITIES

Title: Production of a Preliminary Step-by-Step Protocol for Ocean Dump Site Designation (Project Manager and Principal Investigator)
Agency: U.S. Environmental Protection Agency
Dates: 1982-1983
Projected effort 75% through April 1983
Amount: $50,000

Title: Preparation of Journal Article for Publication (Project Manager and Principal Investigator)
Agency: U.S. Department of Interior, Minerals Management Service
Dates: 1982-83
Projected level of effort 10% through 1983
Amount: $15,000

Title: Fate and Effects of Oil on Georges Bank
Agency: U.S. Dept. of State
Dates: 1982-1983
Projected level of effort 50%
Amount: $143,000

Title: Hydrodynamic and Transport Modeling of New Bedford Harbor
Agency: Aerovox, Inc.
Dates: 1982-1983
Projected level of effort 10% through 1983
Amount: $25,000